


## REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION N/A			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY N/A			3. DISTRIBUTION / AVAILABILITY OF REPORT UNCLASSIFIED/UNLIMITED		
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE N/A					
4. PERFORMING ORGANIZATION REPORT NUMBER(S) 1-87			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION Moncrief Army Community Hosp Ft. Jackson, SC 29207		6b. OFFICE SYMBOL (if applicable)		7a. NAME OF MONITORING ORGANIZATION U.S. ARMY-BAYLOR UNIVERSITY GRADUATE PROGRAM IN HEALTH CARE ADMINISTRATION	
<b>AD-A237 623</b> 		7b. ADDRESS (City, State, and ZIP Code) SAN ANTONIO, TEXAS 78234-6100			
		8b. OFFICE SYMBOL (if applicable)		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State, and ZIP Code)			10. SOURCE OF FUNDING NUMBERS		
			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.
			WORK UNIT ACCESSION NO.		
11. TITLE (Include Security Classification) AN ANALYSIS OF HEALTHCARE PROVIDER PRODUCTIVITY IN SELECTED CLINICAL SERVICES AT MONCRIEF ARMY COMMUNITY HOSPITAL					
12. PERSONAL AUTHOR(S) BARBER, Keith David					
13a. TYPE OF REPORT FINAL		13b. TIME COVERED FROM 7-89 TO 7-90		14. DATE OF REPORT (Year, Month, Day) 1990, August 13	
15. PAGE COUNT 64					
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP	Productivity, efficiency, manpower, staffing, physician productivity,		
19. ABSTRACT (Continue on reverse if necessary and identify by block number) This study compares the actual workload of thirteen clinical services in a medium sized Army Community Hospital to provider based productivity standards found in the Joint Healthcare Manpower Standards (JHMS). It finds that while these standards appear to be reasonable, most of the clinical services fail to meet the JHMS standards by statistically significant margins. The study concludes that the low productivity is due to a lack of guidance and emphasis in the productivity arena; providers have no guidance on what is expected of them and do not have a personal stake in productivity improvement. Specific per provider based guidelines for developing productivity standards are recommended, as are a variety of incentives to give healthcare providers a personal stake in productivity improvement.					
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION N/A		
22a. NAME OF RESPONSIBLE INDIVIDUAL CPT Keith D. Barber			22b. TELEPHONE (Include Area Code) (803)787-5137		22c. OFFICE SYMBOL HSXL-AX

AN ANALYSIS OF HEALTHCARE PROVIDER PRODUCTIVITY IN SELECTED  
CLINICAL SERVICES AT MONCRIEF ARMY COMMUNITY HOSPITAL

A Graduate Management Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

by

Captain Keith D. Barber, MS

August 1990

"REPRODUCED AT GOVERNMENT EXPENSE"

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By	
Date	
Signature	
Special	
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### Abstract

This study compares the actual workload of thirteen clinical services in a medium sized Army Community Hospital to provider based productivity standards found in the Joint Healthcare Manpower Standards (JHMS). It finds that while these standards appear to be reasonable, most of the clinical services fail to meet the JHMS standards by statistically significant margins. The study concludes that the low productivity is due to a lack of guidance and emphasis in the productivity arena; providers have no guidance on what is expected of them and do not have a personal stake in productivity improvement. Specific per provider based guidelines for developing productivity standards are recommended, as are a variety of incentives to give healthcare providers a personal stake in productivity improvement.

## TABLE OF CONTENTS

ABSTRACT.....	ii
TABLE OF CONTENTS.....	iii
CHAPTER	
I. INTRODUCTION.....	1
Conditions which prompted the study.....	1
Problem Statement/Question.....	4
Literature Review.....	5
Productivity definitions and measurements.....	5
Defining Productivity.....	5
Defining and measuring inputs and outputs.....	6
Definitional formulas for productivity.....	9
Business cycle theory and productivity as management issue. . .	10
Using competition to improve productivity.....	11
The relationship of productivity to quality.....	14
Setting productivity standards.....	17
Purpose of the study.....	19
II. METHODS AND PROCEDURES.....	20
III. RESULTS.....	23
General Results.....	23
Clinic by clinic results.....	27
IV. DISCUSSION.....	40
Implications of the results.....	40
Causes of the productivity problem.....	42
Weaknesses of the study.....	44
V. CONCLUSIONS AND RECOMMENDATIONS.....	46
Conclusions.....	46
Recommendations.....	48
Barriers to implementation.....	55
VI. REFERENCES.....	57

## LIST OF TABLES

Table 1. Formulas for total visit requirements (JHMS standards). . . . .	22
Table 2. Formulas used for inpatient days requirements . . . . .	22
Table 3. Overall performance by clinic for total clinic visits. . . . .	24
Table 4. Overall performance by clinic for inpatient days. . . . .	26
Table 5. Number of visits per day according to JHMS standards. . . . .	49

## LIST OF FIGURES

Figure 1. Hospital Workload Declines. . . . .	1
Figure 2. Hospital operating budget and workload since 1981. . . . .	2
Figure 3. COL Modderman's vision for military medical productivity. . . . .	12
Figure 4. Mohlenbrock's AIM model. . . . .	13
Figure 5. The traditional view of productivity and quality. . . . .	14
Figure 6. The "TQM" view of quality and productivity. . . . .	15
Figure 7. The Deming Chain Reaction. . . . .	16
Figure 8. Comparison of military standards to actual civilian practice. . . . .	19
Figure 9. Comparison of clinic productivity as measured by total visits. . . . .	25
Figure 10. Comparison of clinic productivity as measured by inpatient days generated. . . . .	26
Figure 11. Allergy clinic total visits by month vs. required. . . . .	27
Figure 12. Dermatology clinic total visits by month vs. required. . . . .	28
Figure 13. Emergency Room total visits by month vs. required. . . . .	29
Figure 14. Internal Medicine clinic total visits by month vs. required. . . . .	30
Figure 15. Optometry clinic total visits by month vs. required. . . . .	31
Figure 16. Ophthalmology clinic total visits by month vs. required. . . . .	32
Figure 17. Otolaryngology total visits by month vs. required. . . . .	33
Figure 18. Occupational Therapy clinic total visits by month vs. required. . . . .	34
Figure 19. Orthopaedic Surgery clinic visits by month vs. required. . . . .	35
Figure 20. Pediatric clinic total visits by month vs. required. . . . .	36
Figure 21. Podiatry clinic total visits by month vs. required. . . . .	37
Figure 22. Surgery clinic total visits by month vs. required. . . . .	38
Figure 23. Urology clinic total visits by month vs. required. . . . .	39

An Analysis of Healthcare Provider Productivity in Selected Clinical Services at  
Moncrief Army Community Hospital

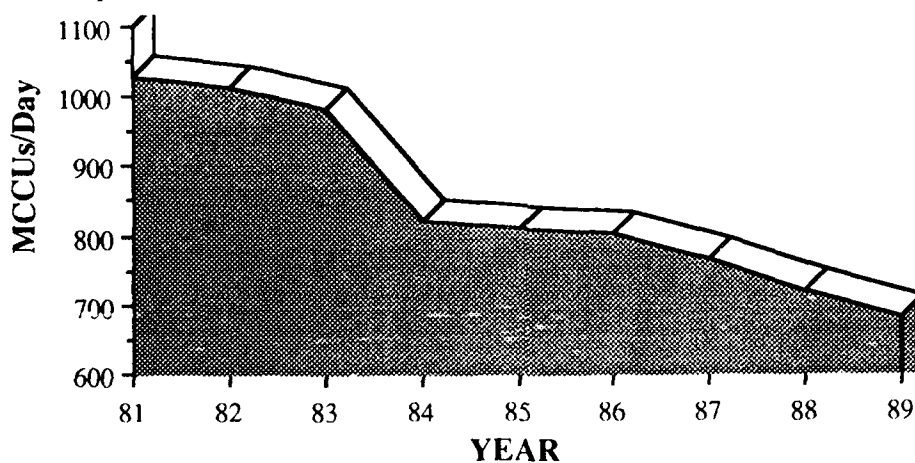
Introduction

Conditions which prompted the study

Moncrief Army Community Hospital is a modern, medium hospital with a war time capacity of 450 beds. Average daily census is approximately 100 inpatients. The hospital is located on an Army post whose primary mission is to provide basic training for approximately 50,000 Basic Combat Trainees and Advanced Individual Training trainees per year. However, most of the hospital's inpatient workload comes from an ever-expanding retiree population that now approaches 80,000 within the catchment area. The entire MEDDAC including the Troop Medical Clinic has an employment base of nearly 1,000 people, including an average of approximately 60 full time equivalent (FTE) physicians.

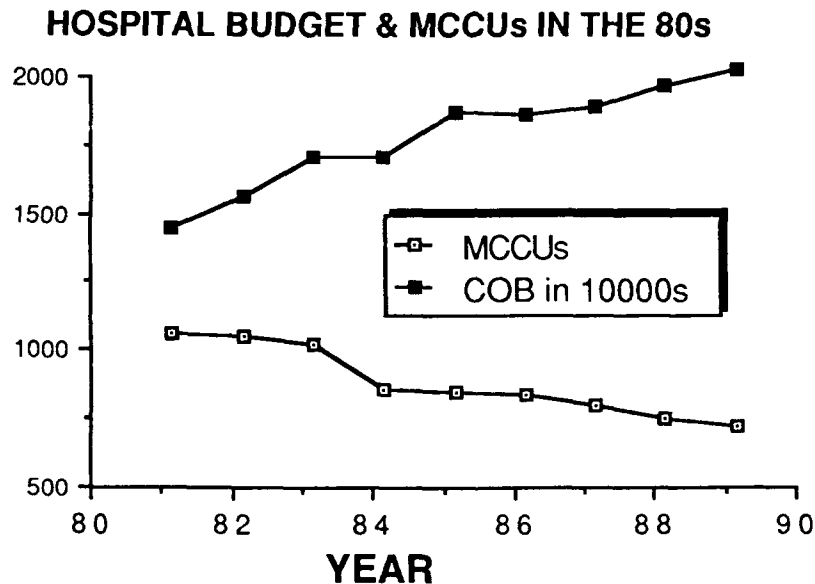
In recent years, the full utilization of these health care providers has become the number one concern facing the hospital management. As shown in Figure 1, workload, as measured by the current method of Medical Composite Care Units (MCCUs) per day, has declined by about 40% over the course of the 1980s.

Figure 1 Hospital Workload Declines.



This decline in workload might be considered acceptable if it were associated with a decline in the resources given the hospital. However, as shown in Figure 2, while workload declined by about 40%, the Command Operating Budget (COB) of the hospital was increasing by about the same amount.

Figure 2 Hospital operating budget and workload since 1981.



Over the same period of time, Health Services Command (HSC) has shifted its method of resourcing hospitals from one based on history ("take last year's budget and add 10%") toward a budget process based more exclusively on demonstrated workload.

Under congressional mandate, the utilization of workload based resourcing will increase and become more sophisticated with the implementation of Diagnosis Related Groups (DRGs) in the near future. The actual development of a DRG model for the military has run into considerable difficulty (McFarling, 1990). According to Colonel McFarling, the Commander of the Healthcare Studies and Clinical Investigation Activity

for the United States Army Health Services Command, one of the major problems associated with implementing a DRG system for the military has been demonstrated by the partial phase in of DRGs that occurred in 1988 and 1989. The large military medical centers tended to be financial winners due to the large amount of higher acuity retiree care they provided, while the medium size medical activities were financial losers. The partial phase in of DRGs was therefore creating a financial incentive for military hospitals to emphasize the expansion of retiree care at the expense of care for active duty soldiers. COL McFarling pointed out that this was incompatible with the military health care systems primary mission to provide care for the active duty soldier. Essentially the financial incentives were reversed from what the "corporate" mission goals were supposed to be. As a result the implementation of DRGs for the military was delayed until a variable could be developed that would be added to the resourcing formula that would eliminate any disincentive for treating the active force. It now appears that it may still be quite some time before DRGs become the primary method of resourcing Army hospitals. Until such time, managers of Army hospitals will have to base their planning and decision processes on the simpler admission and visit oriented MCCUs.

In accordance with the desire to base resourcing on workload and the difficulties associated with implementing a military DRG system, Army, Navy and Air Force (tri-service) working groups have developed tentative guidelines for the number of patients different types of health care providers should see in an average month. Twenty-six of the standards developed by this group were published as manpower guidelines in June of 1989 and are currently being used by Health Services Command as staffing guides for manpower surveys and interim Schedule X evaluations. This memorandum under the title "Joint Healthcare Manpower Standards" (1989) includes tables from which HSC intends to actually determine the number of health care providers given to each of its hospitals.



Thus, if the workload in a particular clinic is not what these guidelines indicate it should be, then the hospital could stand to lose one or more health care providers assigned to that service. It is these guidelines and their relationship to workload actually performed at the Fort Jackson MEDDAC that is the major focus of this paper.

Since productivity is a measure of outputs (workload) to inputs (financial, personnel, equipment and supplies resourcing), those hospitals with high levels of productivity are given increased personnel and money while those with low levels of productivity are given less. Failure to maintain the levels of productivity required to compete for resources can lead to the hospital finding itself trapped in an ever descending downward spiral. Poor productivity leads to fewer resources, particularly physicians assigned. Fewer health care providers and less money leads to reduced workload which leads to fewer health care providers and so on.

This is exactly the kind of trap that Moncrief Army Community Hospital has found itself in. One major example: the decline in resources has included the unreplaced loss of the hospital's only assigned obstetrician and the subsequent closing of the hospital's entire obstetrics service.

#### Problem Statement/Question

The problem that this study addressed was the perceived low healthcare provider productivity at Moncrief Army Hospital. The problem was defined by answering the question: How has the actual workload of selected clinics at Moncrief Army Community Hospital compared to workload standards published by Health Services Command as the Joint Healthcare Manpower Standards (JHMS)?

### Literature Review

#### Productivity definitions and measurements.

##### Defining Productivity.

"Productivity is usually defined as the ratio of output to input" (Denton, 1989, p. 76). While this definition may seem simple its execution is often complicated by the "lack of consensus as to what the appropriate measures of inputs and outputs should be" (Rhein, 1979, p. 38). According to Choich (1988), "productivity implies a balance among all factors of production that will achieve the greatest output for the smallest effort" (p. 1105). Choich goes on to describe five consistent themes that virtually all definitions of productivity encompass. They are: "(1) Providing quantity and quality with minimal man-hours; (2) balancing staffing with workload requirements; (3) motivating personnel; (4) time management; and (5) assessing management effectiveness." Ford (1987) describes productivity "as a cybernetic system of INPUT → PROCESS → OUTPUT. Productivity in such a system is accomplished by keeping input low relative to output and improving on the efficiency of the process phase. . ." (p. 400). Reiling (1990) describes productivity as the relationship between the variables of resources, outputs or services, and value or quality. Choich describes a conceptual productivity triad that encompasses three interacting elements:

1. *Occupancy*: To be productive, one must be occupied (i.e., one must be performing a task).
2. *Effectiveness*: One must be performing the right task; and
3. *Efficiency*: One must be performing the right task in the right way.

One of the pitfalls traditionally found when defining productivity and productivity improvement is the perception that productivity improvement means maintaining the

current output with less input. Reiling (1990) argues strongly that we must escape the thought pattern that the only strategy for improved productivity is maintaining services while cutting resources. He suggests that there are many possible combinations. Choich points out that the variables of output and input can interact with each other in four ways to improve productivity:

1. Output increases with no change in input;
2. Output increases at a faster rate than input;
3. Input decreases with no change in output; or
4. Input decreases at a faster rate than output (p. 1105).

Defining and measuring inputs and outputs.

"If hospital administrators are to monitor and improve productivity, they must first develop a common, accurate measure of work output" (Ford, 1987, p. 399). The difficulty in defining outputs for the health care industry is associated with the long standing difficulty in defining precisely what it is that the health care industry produces. Some say that the "product" of the health care industry should be the improvement of health (Rhein, 1979). The difficulties in measuring this rather subjective concept lead some to argue that it is impossible to define what the health care system does and that productivity measurements cannot be done. Crosby (1979) refutes this pessimism.

There are those who will assume that some tasks are just plain unmeasurable.

To them, you must raise the question of just how they know which people are the best at what jobs, whom to fire, and whom to reward. Anything can be measured if you have to do it (p. 16).

We have to determine output if we are to determine productivity. "Measuring what we do is the first step toward determining how efficient we are" (Ford, 1987, p. 406).

One very common definition of output is money or profits. This is even sometimes

done in the military when for example number of dollars per visit comparisons are used. Reiling (1990) argues against using profits or money as an output measure of productivity because money is a medium to determine the value of an exchange. As such, it is a poor measure of productivity since an increase in profits may simply represent an increase in the value of the exchange and not an improvement in the ratio of output to input. Put another way, an increase in General Motors' profits may be due solely to an increase in the price of their automobiles and not because General Motors is producing more (or better) automobiles for the same input. Owens (1978) suggests that "if you follow the common practice of gauging your productivity by gross billings, you may be fooling yourself. Your billings and income can go up even as your work pace slows" (p. 102). Owens goes on to point out that exactly this has happened. From 1974-1976 median practice earnings after expenses increased 24 percent nationwide, while visits per doctor per week declined by nearly 4 percent. The explanation was a 39 percent rise in physician fees.

"The output component of productivity should be represented by some relevant, nondollar statistic that can be used to quantify the units of intermediate products and services and also reflect the amount of resources consumed in their production" (Choich 1988, p. 1105). The need to define output independent of money has led to the acceptance of the patient encounter as a measure.

Administrators now seem to agree that, while the hospital must produce revenue to survive, an accurate output measure should reflect something that is more indigenous to the industry . . . It is the output of the hospital industry's production effort that distinguishes it from other endeavors. That output is the completed patient encounter (Ford, 1987, p.400).

Salkever (1982) shows that "a number of studies have defined output in terms of a collection of specific tasks or visits" (p. 143). Hudak (1988) accepts using money as an

input measure but still uses patient encounters in his definition of efficiency as the "measurement in dollars (cost) per unit of output (patient encounter)" (p. 283).

The wide acceptance of patient encounters as a measure of output in the health care industry has important implications for this paper. The Joint Healthcare Manpower Standards memorandum developed by tri-service working groups is the basis for the output and input measures and standards used in this study. The primary output measures found in this document are total patient visits and inpatient days. These are the kind of patient encounter oriented outcome measures of productivity that find wide acceptance in a review of the literature on this subject.

In determining the inputs for the productivity function, the use of man hours or full time equivalents (FTEs) is widely accepted.

The input component of the productivity ratio includes the employees' actual worked hours, that is the total personnel hours used to provide the production units of output. These total worked man-hours should exclude paid vacation, sick time, and holidays and should represent the available work time (including overtime hours worked). These data are essential to forecasting the full time equivalents (FTEs) needed by the department relative to its workload (Choich, 1988, p. 1106).

Again, the use of FTEs or man-hours as an accepted input measure for the productivity function has important implications for the methodology used in this study. The tri-service working groups essentially considered a military physician as a full time equivalent. The monthly output standards were based on the assumption that the average physician would work 145 hours per month. This is about 15 percent less than the total number of hours that could be worked per month and is designed to take into account paid vacations, sick time and so forth. This study used this standard of 145 hours per month as the basis for

determining the number of FTEs provided by civilian contract physicians who often work part time at the hospital.

Definitional Formulas for Productivity.

On a conceptual level, Rhein (1979) defines productivity with his equation " $P=E+E+Q$ " or productivity=efficiency + effectiveness + quality. Rhein defines efficiency as relating to the cost of the health services given to the patients or whether the procedures were done as inexpensively as possible and whether health professionals were "used in the most economical fashion." Effectiveness "relates to whether the particular health care service had its intended result." Quality involves considerations of both effectiveness and efficiency. It addresses the issue of whether the care was "medically appropriate in the broadest sense of that phrase, including both physical and mental well being" (p. 40).

Beck (1990) specifically endorses the use of ratios such as visits per physician per month as practical and meaningful measures of productivity. This is precisely the kind of ratio used in the Joint Healthcare Manpower Standards (JHMS) that form the basis of this study.

Serway (1987) suggests several productivity indicators to include:

1. FTEs per adjusted occupied bed.
2. Total operating expense/net patient revenue.
3. Ratio capitation expense/net capitation to hospital (contribution margin by product line).
4. Ratio productive and nonproductive salary expense/net patient revenue.
5. Ratio productive FTE expense/net patient revenue.
6. Ratio productive FTE expense/adjusted patient day (p. 392).

Note that Serway relies heavily on the kind of dollar oriented measures of output that are discouraged by Reiling, Owens, Choich, Ford and others to include the tri-service working

groups that developed the JHMS standards.

Hurdle (1989) defines productivity as a function of the variables Q,H,L,K,M and Z "where Q=annual physician output (visits or billings per year), H=physician time input, L=nonphysician labor time inputs, K=capital inputs, M=physician practice or area function, and Z=aspects of physician output (case mix, content or quality that are not captured in visits or billings)" (p. 103). Hurdle describes this function as the "'technical' relationship between physician productivity and its determinants." In addition, Hurdle defines  $V/Y = (V/H) * (H/Y)$  where  $V/Y$ =patient visits per year,  $V/H$ =visits per physician per hour, and  $H/Y$ =the number of hours worked by the physician per year or the the physician's "work effort" (p. 102). Hurdle's formulas once again emphasize the visit oriented measures of output that are incorporated into the JHMS standards.

#### Business cycle theory and productivity as a management issue

Reiling (1990) ascribes the current concern for health care productivity to the life cycle theory of industries. In this theory, industries go through four stages: birth, growth, maturity, and decline. The management skills required and the factors emphasized change as the industry moves through these stages. In the birth stage the industry is characterized by rapid growth of a few small companies. The emphasis is on risk taking managers and the key to success is being first with the technology. The growth stage is characterized by new organizations entering the industry and the introduction of new products and services. Like the birth stage it emphasizes risk taking and technological movement. In the maturity stage the revenue stream is capped. It is characterized by consolidation of the industry into a few large companies. For managers, survival is the key concern; risk taking is out and concern for market share, productivity and quality is paramount. The final stage in the cycle is decline, characterized by bankruptcy and a shift in the industry to growth areas. In Reiling's model the current concern for productivity is occurring because the health care

industry is transitioning from the growth cycle to the maturity cycle. The concerns associated with the maturity cycle are becoming important to the industry. The military health care system might under Reiling's model now be focused on productivity because the system has reached the maturity or even the decline stage. Certainly, the revenue stream for the military in general has levelled off and is even declining.

Using competition to improve productivity.

Several authors have suggested that competition is the key to improving health care productivity. Califano (1986) believes that American businesses are the "key to solving the health care crisis in America" (p. 31). He believes that "corporate America's aggressive pursuit of lower-cost quality health care" is the best hope for improving the efficiency of the system (p. 223). Califano hopes that employers will negotiate with efficient health care providers to deliver quality health care at agreed upon lower prices. He believes that this kind of reform is inevitable because of the high cost of health care to American business. Health insurance premiums in 1984 totaled \$90 billion, which was 38 percent of pretax profits and more than American businesses paid out in dividends to all of their shareholders.

The idea of using competition to improve productivity is not limited to the civilian sector. Colonel Modderman, the Chief of the Healthcare Administration Division at the Academy of Health Sciences, (1989) advocates a concept in which military hospitals and their leaders will be rewarded for high productivity and targeted for intervention for low productivity. He believes that the military will transition to DRGs and Ambulatory Visit Groups (AVGs) and that, while these measures of workload have their problems, they are a superior method of workload measurement compared to the traditional MCCU and as such they have a better potential for rewarding productivity and fairly allocating resources. Colonel Modderman has developed a model of how he thinks such a system should work.



Figure 3. Colonel Modderman's vision for military medical productivity.

VALUES			
		Low Productivity	High Productivity
Well Resourced		Target for management intervention	No intervention Leave alone
		Resources tied to gains in productivity	Reinforce and reward. Increase resources.

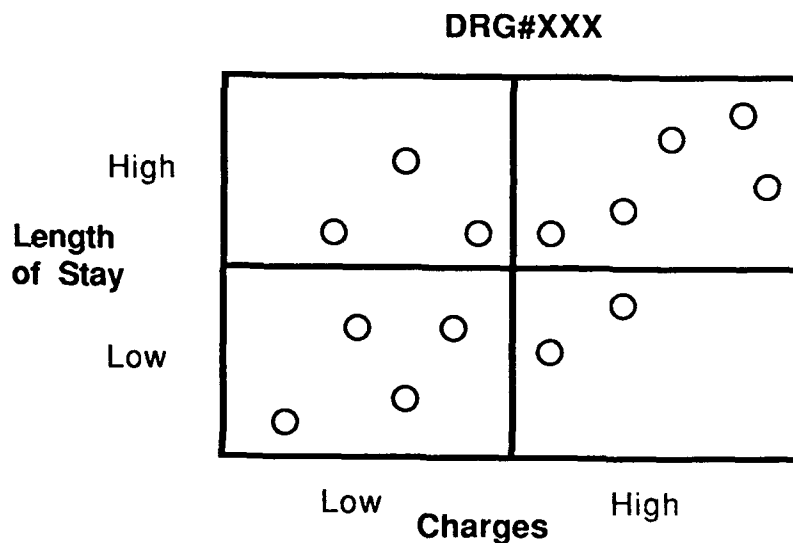
Essentially Colonel Modderman is echoing Choich (1988) when Choich suggests that productivity is a key measure of management effectiveness. We know that managers are doing a good job when they are getting the greatest possible output for their inputs. Colonel Modderman is suggesting that productivity become an important measure of management effectiveness and that effective (high productivity) managers be rewarded while low productivity managers are targeted for intervention and control from a higher headquarters.

Modderman's conceptual model was only designed to present the set of values that he feels the military health care system should adopt in regard to productivity. He did not provide any real guidance on how such values could be incorporated into a system.

However, the computer revolution is beginning to provide the tools that allow for productivity comparisons among health care providers. Mohlenbrock (1990) provides a model that looks very similar to COL Modderman's. Mohlenbrock (1990) uses an automated system that controls for acuity within a specific Diagnostic Related Group called

the Acuity Index Method (AIM). AIM uses data already reported under Medicare requirements. One of the products of the system is a chart that looks something like the example shown in Figure 4.

Figure 4. Mohlenbrock's AIM model.



Mohlenbrock can calculate this kind of information for virtually any level of health care provider; hospitals can be compared against similar hospitals or specific physicians can be compared against other physicians. Mohlenbrock suggests that Chrysler might be very interested in sending its employees to the health care providers in the lower left quadrant while avoiding sending its employees to the health care providers in the upper right quadrant. That seems to be just the kind of competition generated by American business to improve productivity that Califano suggested. Unfortunately, since Mohlenbrock's system uses Medicare data it is not directly applicable to the military system. It does, however, represent the kind of system that would be compatible with achieving the goals suggested by Colonel Modderman.

There are other examples of the computer revolution being used to effectively measure

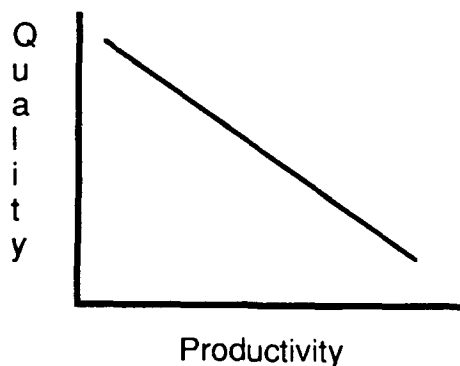
healthcare productivity for individual facilities. Higgins (1988) describes an automated system called Physician Services Productivity (PSP). PSP users can compare themselves to other practitioners and it allows money makers and money losers to be identified. Richland Memorial Hospital in Columbia, South Carolina uses a very similar system called the Cost Quality Management System (CQMS). CQMS provides a variety of useful management tools to include the most and least productive physicians in the hospital. The management has used the system to target 35 physicians that need to alter their practice behavior.

The relationship of productivity to quality.

Physicians at Moncrief Army Hospital often state that they could provide more care but to do so would be at the expense of quality care. When they do so they are using the traditional management model as expressed in Figure 5 which holds that productivity is mutually exclusive to quality. That is, as productivity goes up, quality goes down and vice versa (Reiling, 1990).

Figure 5. The traditional view of productivity and quality

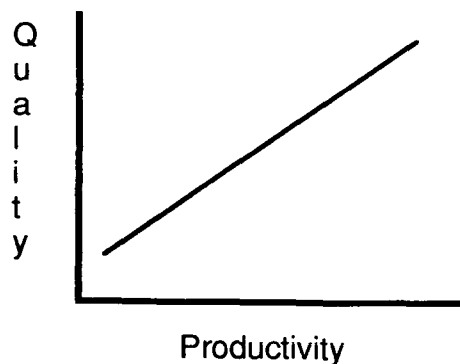
**TRADITIONAL VIEW OF QUALITY vs. PRODUCTIVITY**



This view of the productivity/quality relationship is now fading as the Deming theories of management take hold in American industry. This theory now operating under the title of "Total Quality Management" (TQM) holds that productivity and quality are the same thing. The relationship between the two is, of course, positive as shown in Figure 6.

Figure 6. The "TQM" view of quality and productivity.

### DEMING'S VIEW OF QUALITY & PRODUCTIVITY

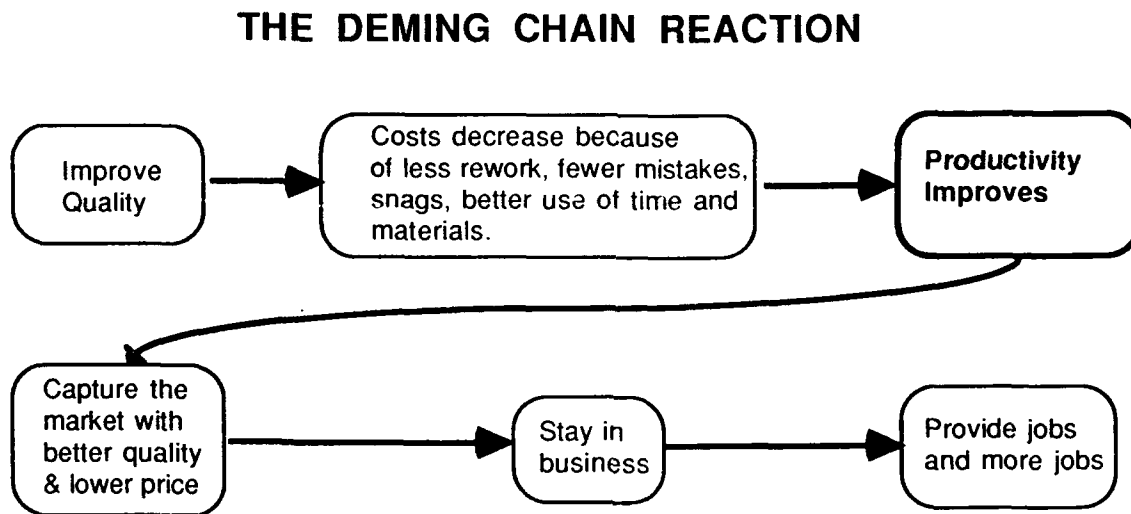


Bustos (1989) describes TQM as a "business formula that postulates that increased quality leads to increased productivity and decreased costs." In the Deming theory, quality improvement impacts positively on productivity through a cause and effect mechanism (see Figure 7) described by Walton (1986) as the "Deming Chain Reaction" (p. 25).

Obviously, the Deming chain reaction as described by Walton is not directly applicable to the military health care system. While the top half of the model would be the same for the military there would have to be some changes in the bottom half. "Capturing the market" for the military could refer to doing more work and pleasing patients so as to recapture work load that is currently being done through CHAMPUS. Doing this at reduced costs would help to convince Congress that the military health care system provides a cost effective benefit. This would presumably result in the military health care system's ability to "stay in business" and even lead to increased staffing to better recapture

the CHAMPUS market through the less expensive (if it is efficient) military system.

Figure 7. The Deming Chain Reaction.



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Crosby (1979) describes a fundamental belief permeating the Total Quality Management philosophy when he says that "quality is free." Under TQM, the emphasis is on developing a process that eliminates inefficiencies in the system. The idea is to stop problems before they get started. "Why spend the time finding and fixing and fighting when you could prevent the incident in the first place?" (Crosby, 79, p. 4) The cost of quality "is the scrap, rework, service after service, warranty, inspection, tests and similar activities made necessary by nonconformance problems" (p. 11). Werner (1989) estimates that the total cost of quality is 20 to 30 percent of net revenue in most businesses. Reiling (1990) is less generous when considering the health care industry. He estimates that 30-50 percent of hospital cost "is the cost of doing things over." Crosby describes the cost of quality as the "expense of doing things wrong".

Often, physicians (especially at this health care facility) will claim that productivity

increases will impact on the quality of care. Such claims fall on deaf ears as the Deming theory on the relationship between quality and productivity becomes more and more popular. As Reiling (1990) puts it, "It is a fact that the lowest cost producers in this country are also the highest quality producers."

Setting productivity standards.

When setting productivity standards, Denton (1984) strongly recommends avoiding what he calls the "myth of standards" (p. 74). The myth of standards holds that there is some absolute level of productivity that the organization should strive for. If that level of productivity is reached it should be rewarded. Large efforts are directed toward applying various industrial engineering techniques to determine what the one and only correct standard is. Denton suggests that the productivity standard be based on the current level of productivity and efforts be made to improve it from there, rather than on absolute (and often arbitrary) standards. Hurdle (1989) echoes this philosophy, describing past productivity trends as "a useful first step in estimating future productivity requirements" (p. 101).

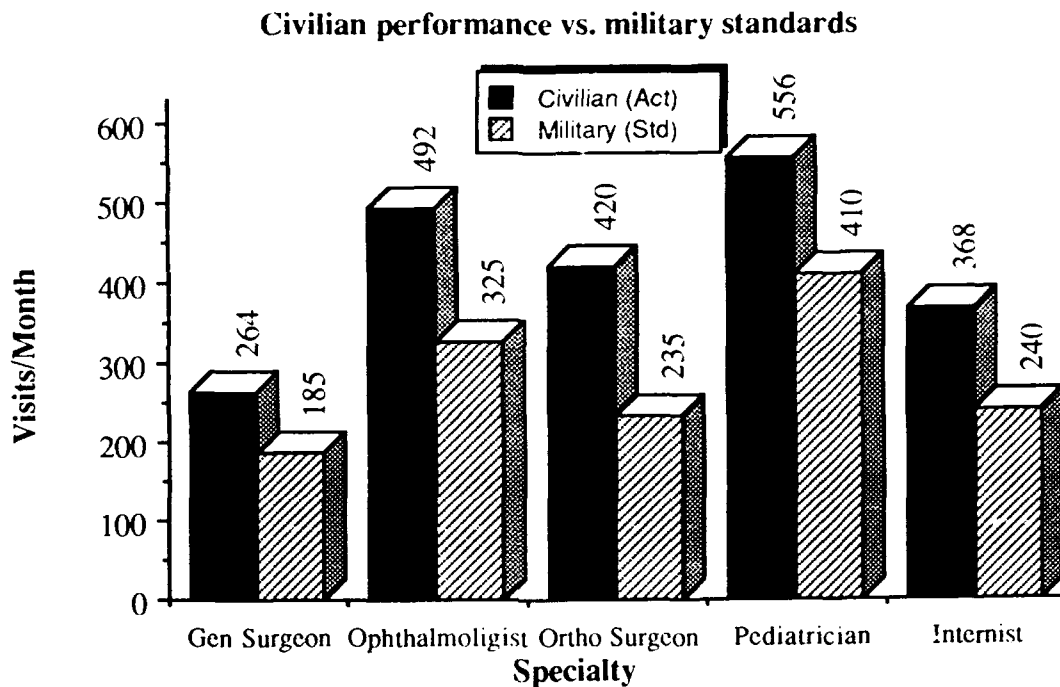
In March 1987 representatives from Army, Navy, and Air Force met to develop tri-service productivity goals (Williams, 1990). Twenty-six of the standards developed by this group were published as manpower guidelines in June of 1989 and are currently being used by Health Services Command as staffing guides for manpower surveys and interim Schedule X evaluations. According to Williams the philosophy of this effort was to apply management engineering techniques to study Department of Defense manpower resources.

Since these Joint Healthcare Manpower Standards (JHMS) are the focus of this paper, their legitimacy is of direct concern to this study. Are the standards developed by the tri-service working groups reasonable? One crude method of attempting to answer this question is to compare actual work performed by civilian physicians against the standards

imposed by the JHMS. While it is certainly true that the unique nature of military missions may detract from productivity, it is also true that military physicians enjoy some productivity advantages over their civilian counterparts. For example, military physicians for the most part only work in one facility. Most civilian physicians have to split time between their offices and often several hospitals. Owens (1987) listed the actual median number of visits per physician per week for fifteen physician specialties for incorporated and unincorporated physicians. Five of these specialties matched specialties for which there were JHMS standards. Unfortunately, the JHMS standards are for the number of visits per month while the rates reported by Owens were visits per week. Also, Owens did not describe the methodology he used in determining the number of visits per week. To compensate for differing job requirements that military physicians may have in comparison to civilian practitioners every effort was made to be conservative and to err on the side of the military physician. The visits per week were converted to an estimated number of visits per month by simply multiplying visits per week times four. There are generally more than four weeks in a month. This would allow for only 48 weeks per year instead of the traditional 50 used when making such calculations. In addition, the numbers used were for unincorporated physicians because that was universally the lower number of patient visit rates for civilian physicians reported by Owens. In spite of these efforts to err on the side of conservatism, the civilian physicians still substantially outperformed the JHMS standards as shown in Figure 8.

Based on this admittedly crude descriptive analysis, it would appear that the JHMS standards developed by the military do not impose unreasonable work requirements on military physicians.

Figure 8. Comparison of military standards to actual civilian practice.



"REPRODUCED AT GOVERNMENT EXPENSE"

Purpose of the study.

The purpose of this study was to determine the level of healthcare provider productivity of clinical services at Moncrief Army Community Hospital. The study compared the actual workload of selected clinical services at Moncrief Army Community Hospital to health care provider staffing based standards developed by tri-service working groups and published by the Efficiency Review and Staffing Standards Division of Health Services Command. The study was to estimate the broad impact on the hospital if these standards had actually been in effect for the fiscal year 1989. The study provided information to the Command on the extent of the productivity problem and should assist the Command in targeting those areas where productivity improvement is most needed. The primary goal



of the study was to provide guidance for establishing a productivity strategy within the studied clinical services that would improve productivity. In addition, the study was to provide some indication of whether the standards developed by the tri-service working groups are reasonable predictors of an actual MEDDAC clinic's performance. This study was primarily descriptive in nature and not inferential.

### Methods and procedures

There are three significant variables to this study: actual healthcare provider staffing in selected clinics by the studied months, workload required to be performed for each of the studied months based on that staffing and the Joint Healthcare Manpower Standards (JHMS), and the actual workload performed by the selected clinics in the studied months. The studied months in this study were for fiscal year 1989 and thus included October 1988 through September 1989.

Twenty-six such standards were published in the JHMS; however, many of those were for specialties not found at Moncrief Army Community Hospital. Thirteen of the standards published matched specialties found in clinics at this MEDDAC. Those were for Allergy, Dermatology, Emergency Room, Internal Medicine, General Surgery, Ophthalmology, Optometry, Pediatrics, Podiatry, Orthopaedics, Otolaryngology (ENT), Occupation Therapy, and Urology. All of these clinics were studied.

The first step was to determine the number of healthcare providers (as defined by the JHMS) assigned to each of those clinics being studied. The number of providers was determined using data from the Military Expense Performance Reporting System (MEPRS), and was then matched with data reported for the same information from the hospital's personnel office. In addition to counting the assigned military healthcare providers as essentially one Full Time Equivalent it was necessary to count civilian contract

and partnership healthcare providers, many of whom only worked part time at the hospital. The MEPRS data base provided the number of hours worked by these civilian healthcare providers. One of the assumptions made in determining the JHMS standards for the military healthcare providers was that they would actually work only 145 hours per month. This loss of about 15 percent of the possible hours represents time lost from leave, illness, TDY, etc. A healthcare provider working 145 hours was therefore considered to be a full time equivalent. For each clinic, the number of hours worked by the civilian healthcare providers was divided by 145 to determine the full time equivalent contribution from the civilian force. This number was added to the number of military healthcare providers (of the same type) that worked in the appropriate clinic.

Two monthly measures of actual workload performed were required: total visits and inpatient days generated by the clinic (for those clinics that generate inpatients). Data for both was obtained from reports generated from the MEPRS database and maintained in the Resource Management Division of the hospital.

The required workload was calculated by "plugging in" the actual staffing of each clinic to the formulas provided in the JHMS for those clinics. The formulas used for the total visits measure of workload standards are summarized in Table 1.

In addition, the JHMS provides standards for inpatient days to be generated by those clinics that are capable of generating inpatient days. The formulas used to calculate the required inpatient days measure of workload are summarized in Table 2.

Table 1. Formulas for total visit requirements (JHMS standards).

<u>CLINIC</u>	<u>FORMULA</u>
Allergy	Required Visits=(250 per Allergist) + (300 per Allergy Tech)
Dermatology	Required Visits=565 per Dermatologist
Emergency Clinic	Required Visits=1250 for 1st 9 physicians + 600 per physician over 9
Internal Medicine	Required Visits=(240 per Internist) + (294 per Nurse Practitioner)
Pediatrics	Required Visits=(410 per Pediatrician) + (500 per Nurse Practitioner)
Surgery	Required Visits=185 per Surgeon
Optometry	Required Visits=340 per Optometrist
Ophthalmology	Required Visits=325 per Ophthalmologist
Orthopaedic Surg	Required Visits=(235 per Orthopaedic Surgeon) + (45 per Ortho Tech)
Podiatry	Required Visits=300 per Podiatrist
Otolaryngology	Required Visits=300 per Otolaryngologist
Urology	Required Visits=215 per Urologist
Occup Therapy	Required Visits=(180 per Therapist) + (190 per Technician)

Table 2. Formulas used for inpatient days requirements (JHMS standards).

<u>CLINIC</u>	<u>FORMULA</u>
Internal Medicine	Required Inpatient days=95 per Internist
Pediatrics	Required Inpatient days=70 per Pediatrician
Surgery	Required Inpatient days=190 per Surgeon
Ophthalmology	Required Inpatient days=30 per Ophthalmologist
Orthopaedic Surg	Required Inpatient days=125 per Orthopaedic Surgeon
Otolaryngology	Required Inpatient days=75 per Otolaryngology
Urology	Required Inpatient days=75 per Urologist

The standards listed in both Table 1 and Table 2 are per month standards. The clinics should perform the calculated work in one reporting month. For example, two Ophthalmologists should generate 650 total visits and 60 inpatient days in a one month period to meet the JHMS productivity standard.

After determining the required workload and the actual workload performed, the variance between the two was determined. The actual workload was divided by the required workload and multiplied by 100 to determine at what percent of required capacity the clinic was operating. In addition, a T test was applied to the results for each clinic to determine if the performed workload was significantly different from the required workload, or if any difference found could reasonably be expected to occur as a result of normal variation. In all cases the Alpha level for statistical significance was set at .05 and the more rigorous two-tailed critical value was used. Since the sample size of 12 months was the same for every test, the critical value for T(1,22) with  $p < .05$  was always 2.07.

Initial results of this study, to include the number of healthcare providers assigned to each section, were made available to each clinic chief, who was given an opportunity to challenge the results and correct the record. In one case (Internal Medicine) a clinic chief's response indicated that the number of healthcare providers within that clinic had been slightly over stated due to a misinterpretation by the researcher when matching physicians to the proper MEPRS workload codes. The comment by the Chief of Internal Medicine was investigated, found to be valid and led to a correction that slightly altered the results of the study.

## Results

### General Results

As shown in Table 3 and Figure 12 for total clinic visits, three clinics (Podiatry, Optometry and Orthopaedic Surgery) significantly exceeded the JHMS standards; two

Table 3. Overall performance by clinic for total clinic visits.

<u>CLINIC</u>	<u>Avg Req</u>	<u>Actual Avg</u>	<u>% of Req capacity</u>	<u>T</u>
Allergy	800	586	73%	5.26**
Dermatology	1035	834	81%	3.65**
Emergency Room	3122	2943	94%	0.89 N/S
Internal Medicine	2208	1922	87%	2.46*
Pediatrics	2198	1861	85%	3.76**
Surgery	848	534	63%	7.48**
Ophthalmology	650	433	67%	13.7**
Optometry	1360	2757	203%	7.79**
Ortho Surgery	889	1259	142%	9.98**
Urology	394	315	80%	2.84**
Podiatry	725	1811	250%	6.74**
Otolaryngology	325	268	83%	1.95 N/S
Occup Therapy	964	766	79%	3.87**

N/S--Not statistically significant

\*p&lt;.05

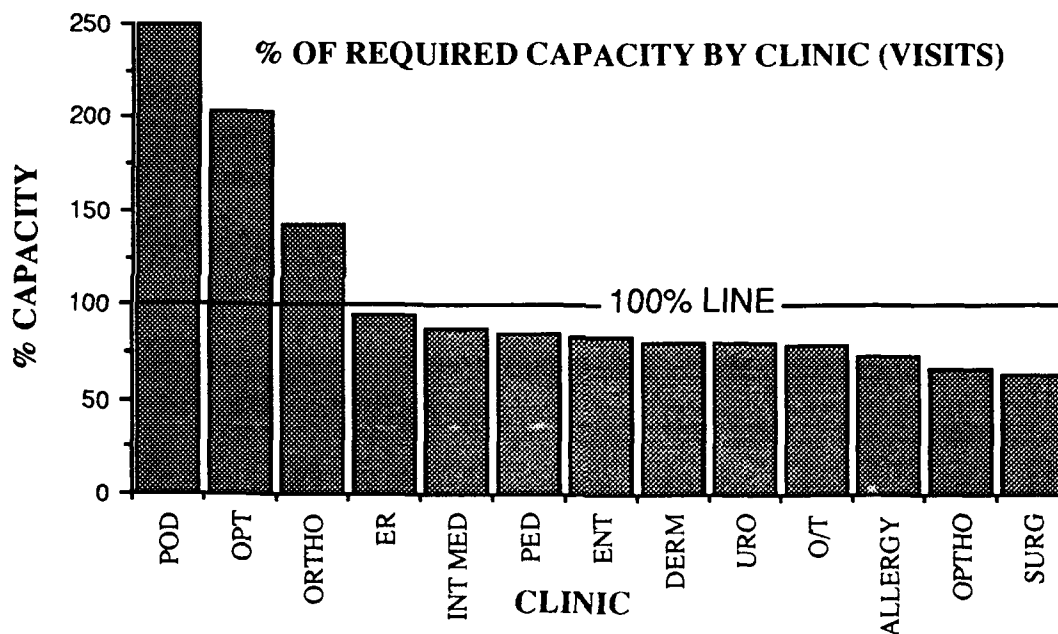
\*\*p&lt;.01

clinics (Emergency Room and Otolaryngology) were within the variance that could reasonably be expected. All of the other clinics (a total of eight) were significantly below the performance required to meet the JMHS standards. Most clinics achieved T-scores that were well over the .01 level of significance for the more rigorous two-tailed test. Table 3 presents the average clinic visits required per month by JHMS standards, the actual average number of clinic visits performed per month for each clinic, the percentage of the required

JHMS capacity that each clinic operated at and the appropriate T score for each clinic to demonstrate whether there was a statistically significant difference between the average required and the average performed.

A comparison of the clinics' productivity as measured by the "percentage capacity" or the percent of total visits performed vs. those required is summarized in Figure 9.

Figure 9. Comparison of clinic productivity as measured by total visits.



This graph dramatically shows that the few clinics that are outperforming the standards are doing so by very large margins, while those who are underperforming the standards are generally doing so by large margins also.

None of the clinics responsible for generating inpatient workload came even close to the JHMS standards for doing so. In fact, every one of the clinics deviated from the standard sufficiently to generate a T-score that was significant at the .01 level of confidence. The overall results for inpatient days generated by clinic are summarized in Table 4.

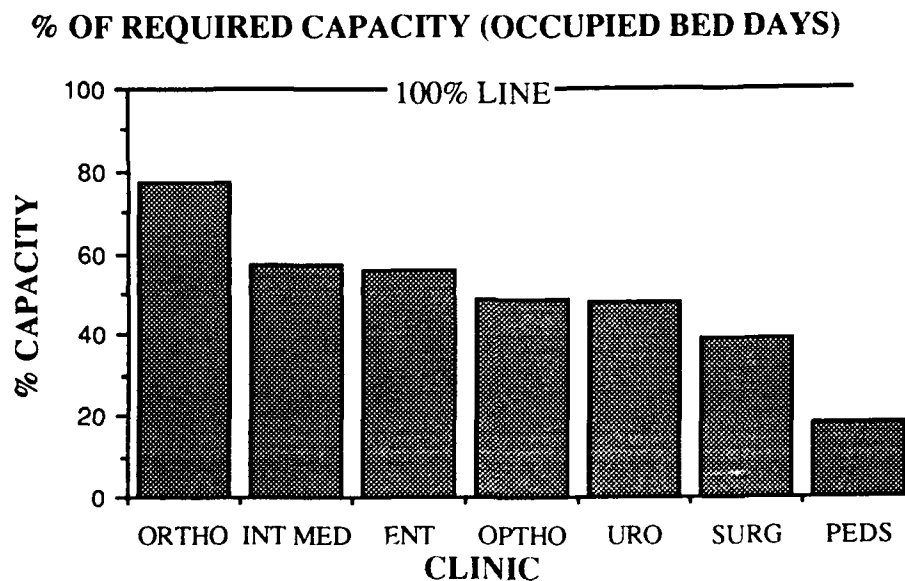
Table 4. Overall performance by clinic for inpatient days.

<u>CLINIC</u>	<u>Avg Req days</u>	<u>Avg Act days</u>	<u>% of Required</u>	<u>T</u>
Internal Medicine	641	363	57%	12.03**
Pediatrics	333	60	18%	23.96**
Surgery	871	354	41%	12.36**
Ophthalmology	60	29.5	49%	9.53**
Ortho Surgery	33	256	77%	2.81**
Otolaryngology	81	46	56%	4.18**
Urology	138	67	48%	6.62**

\*\*p&lt;.01

The clear inability of all of these clinics to meet the inpatient day manpower resourcing standards developed by the JHMS is dramatically illustrated in Figure 10.

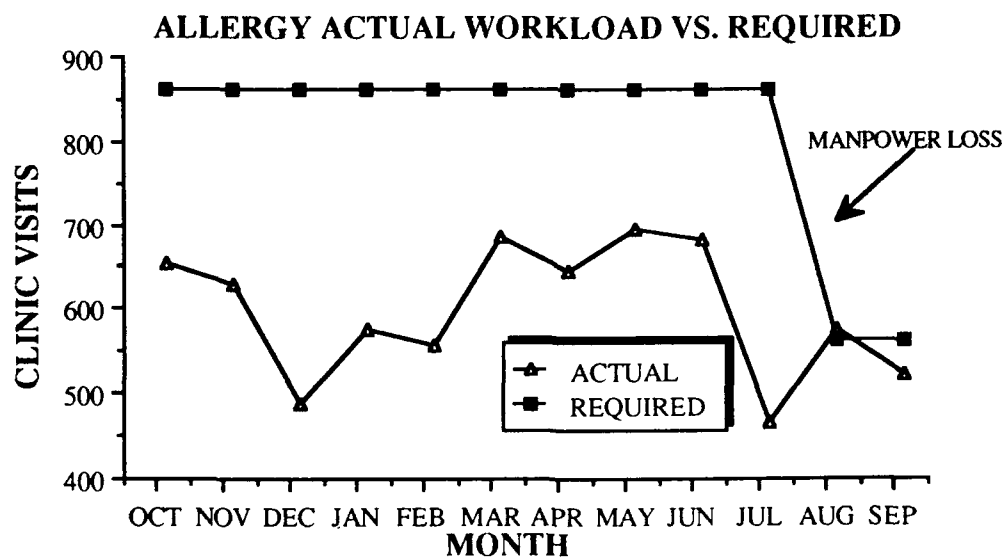
Figure 10. Comparison of clinic productivity as measured by inpatient days generated.



### Clinic by Clinic Results

Examination of the total visit patterns by clinic by month shows that most of the clinics consistently either outperformed or underperformed their standard. However, in a few cases the results were mixed, demonstrating that some clinics could exceed the standards on a temporary basis. Month by month performance by clinic against the JHMS standard are summarized in Figures 11-23. Analysis of the possible reasons for clinical service performance is found in the discussion section of this paper.

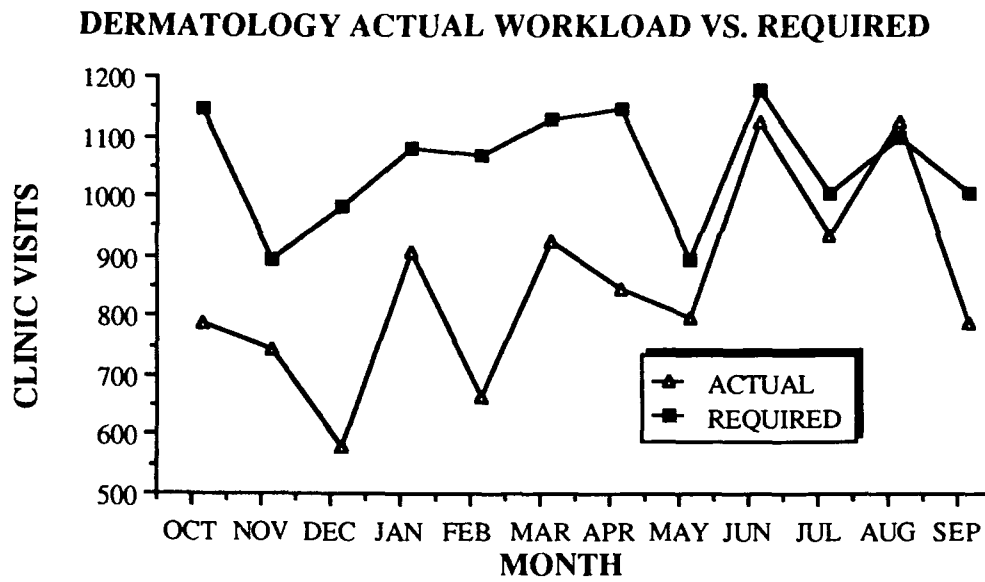
Figure 11. Allergy clinic total visits by month vs. required.



The improvement in productivity in this clinic in the last two months of the year was caused solely by the loss of one person (allergy technician) while the clinic maintained workload.

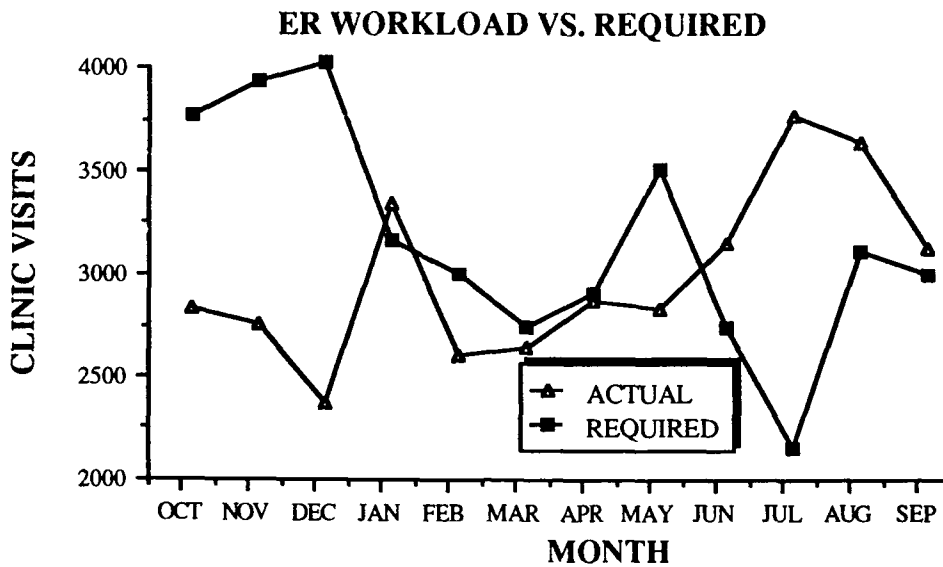


Figure 12. Dermatology clinic total visits by month vs. required.



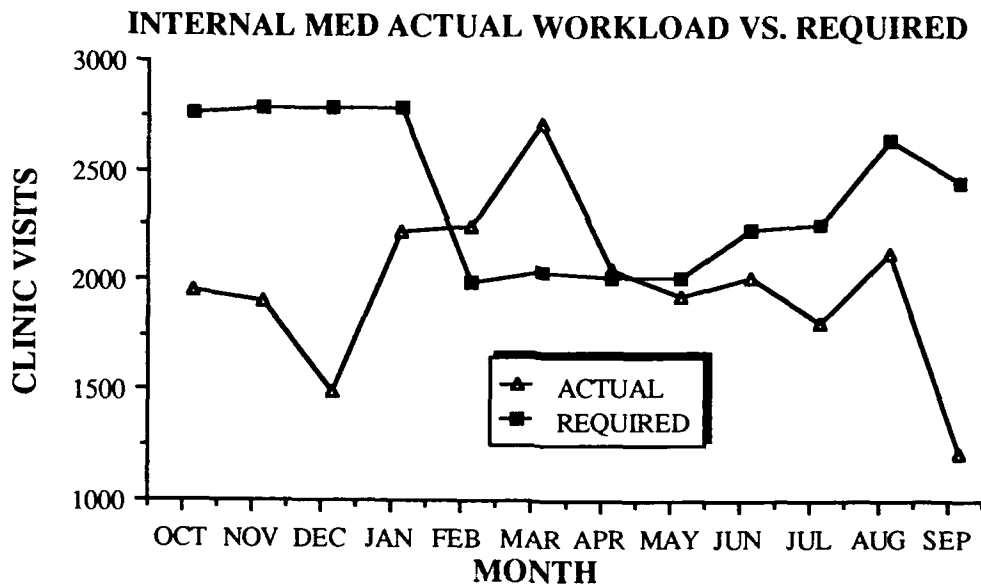
The Dermatology clinic's productivity seemed to improve during the last few months of the study as indicated by the two lines moving closer together.

Figure 13. Emergency Room total visits by month vs. required.



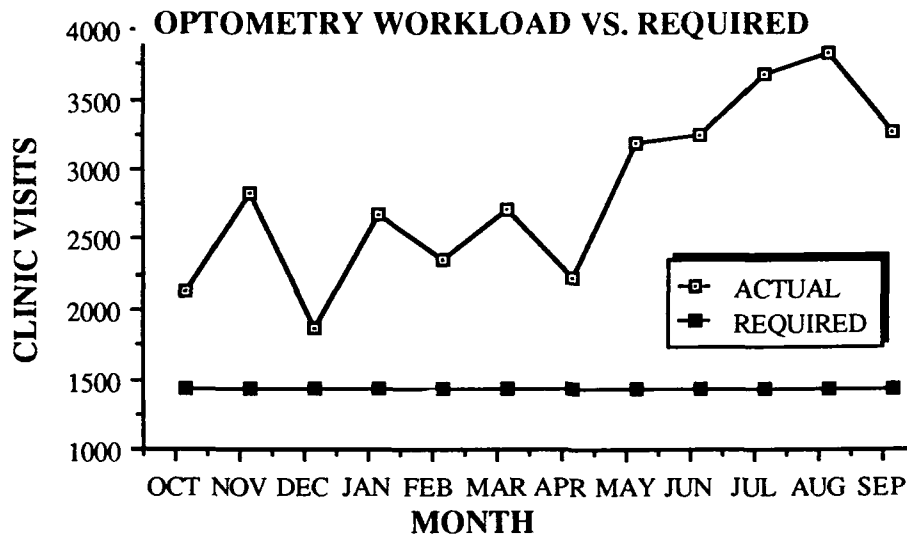
As shown, the Emergency Room functioned at or above the standard almost half of the time. The Emergency Room was one of only two clinics to not have a significant overall deviation from the standard.

Figure 14. Internal Medicine clinic total visits by month vs. required.



As shown, the internal medicine clinic generally operated below the JHMS standards but did show an ability to exceed or meet the standard on the three consecutive months February through April. The fact that work performance peaked during the period of lowest staffing is difficult to explain. This may be an indication that there is considerable slack within the clinic normally and that the clinic has the capability to increase workload.

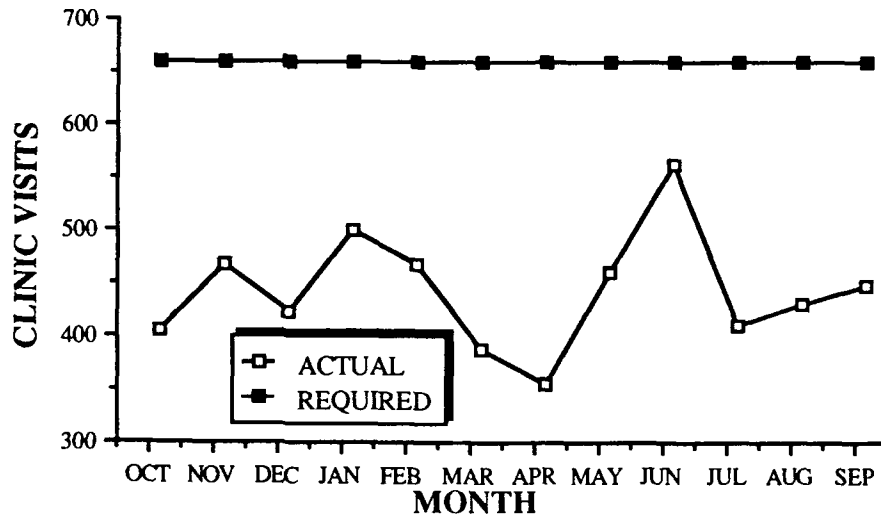
Figure 15. Optometry clinic total visits by month vs. required.



The Optometry clinic was one of three clinics that consistently outperformed the JHMS standards by large margins.

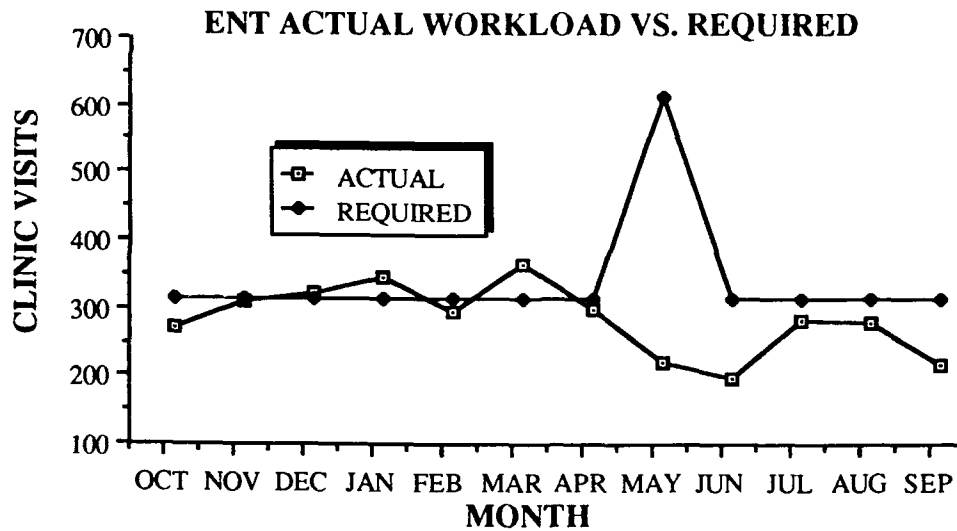
Figure 16. Ophthalmology clinic total visits by month vs. required.

**OPHTHALMOLOGY ACTUAL WORKLOAD VS. REQUIRED**



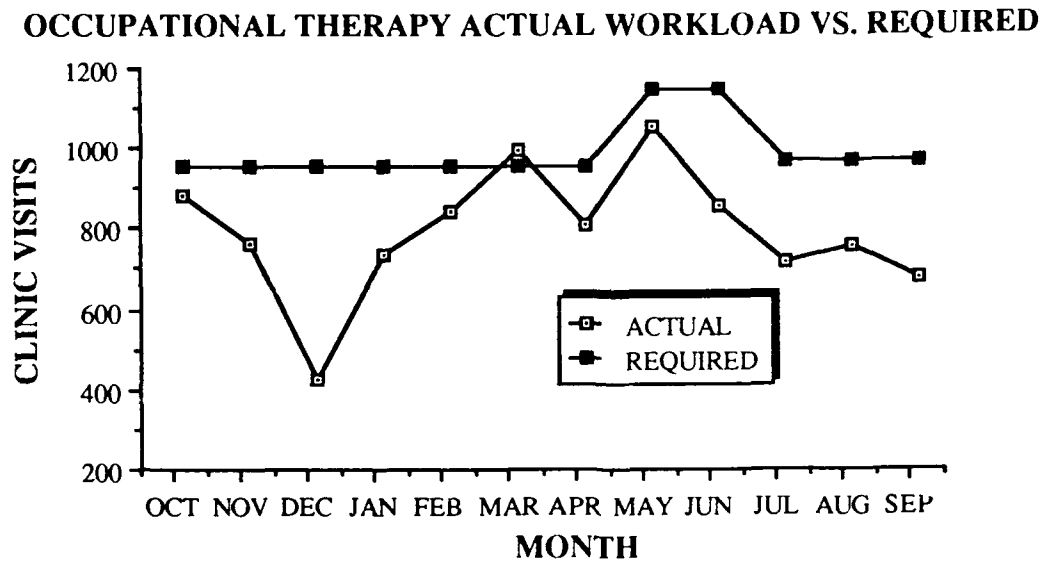
The Ophthalmology clinic consistently underperformed the requirements by large margins.

Figure 17. Otolaryngology clinic total visits by month vs. required.



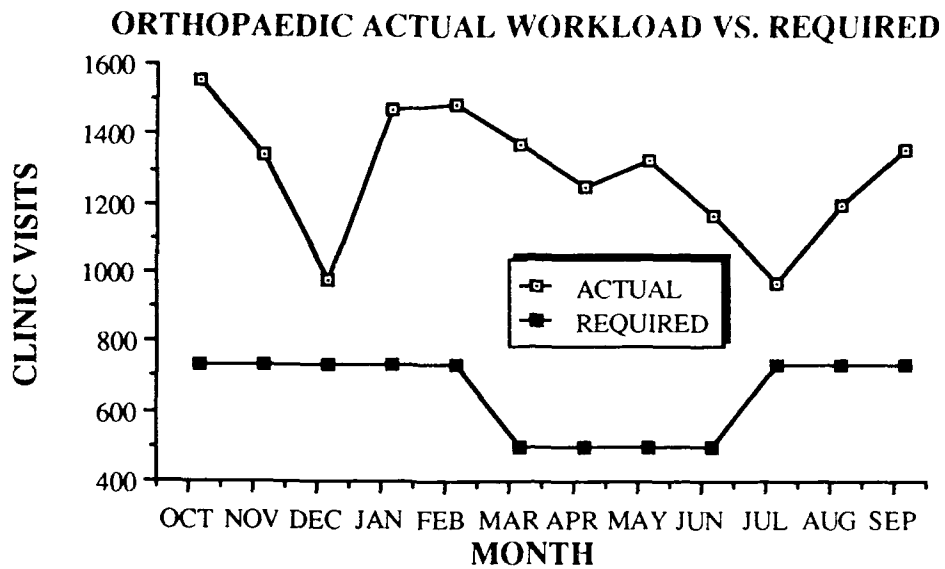
This clinic's only substantial departure from the standard occurred during a one month overlap of otolaryngologists. It is reasonable to assume that the turmoil associated with the change in leadership was responsible for the decline in productivity at that time. This was one of only two clinics that did not deviate substantially from the JHMS standard. The deviation would have been even less had it not been for the one month outlier associated with the replacement of the hospital's only otolaryngologist.

Figure 18. Occupational Therapy clinic total visits per month vs. required.



The Occupational Therapy clinic's performed workload generally paralleled the requirements except for the expected large drop in workload that occurs every December. The December decrease in workload is due to the unique temporary suspension of Fort Jackson's basic training operations for Christmas. In a highly planned process called "Exodus" virtually every basic trainee on post is sent home for the holidays.

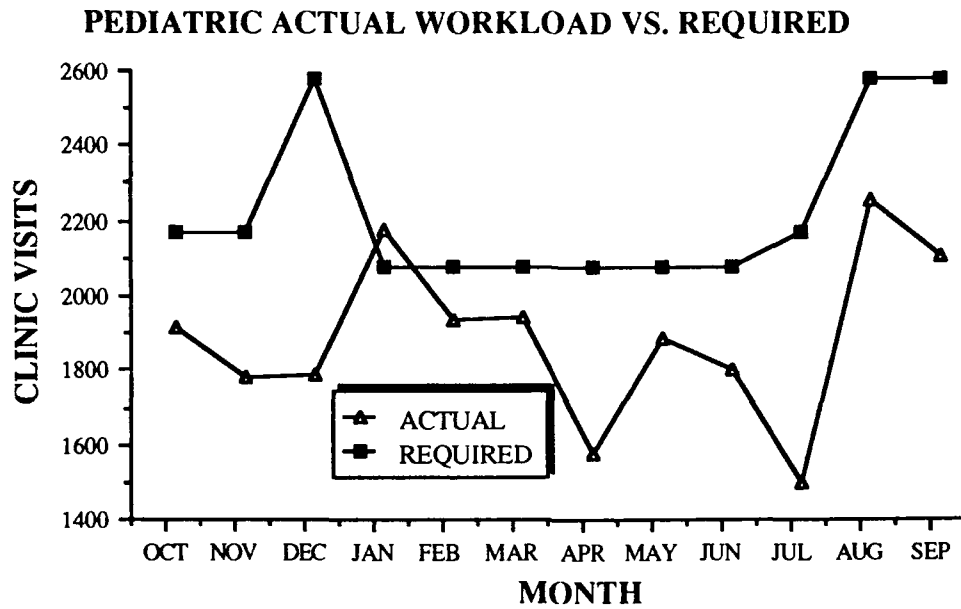
Figure 19. Orthopaedic Surgery clinic total visits by month vs. requirement



Orthopaedics was one of three clinics whose actual workload significantly exceeded the JHMS requirements.

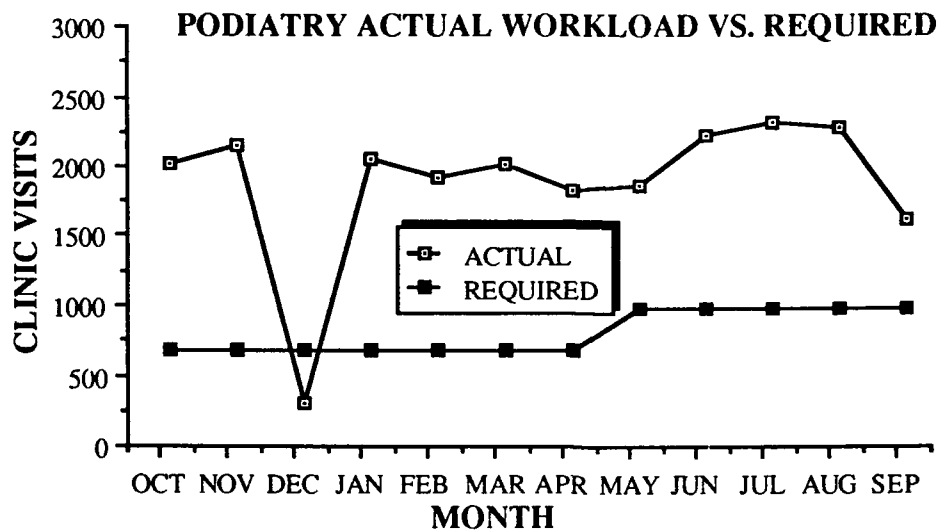


Figure 20. Pediatric clinic total visits by month vs. required.



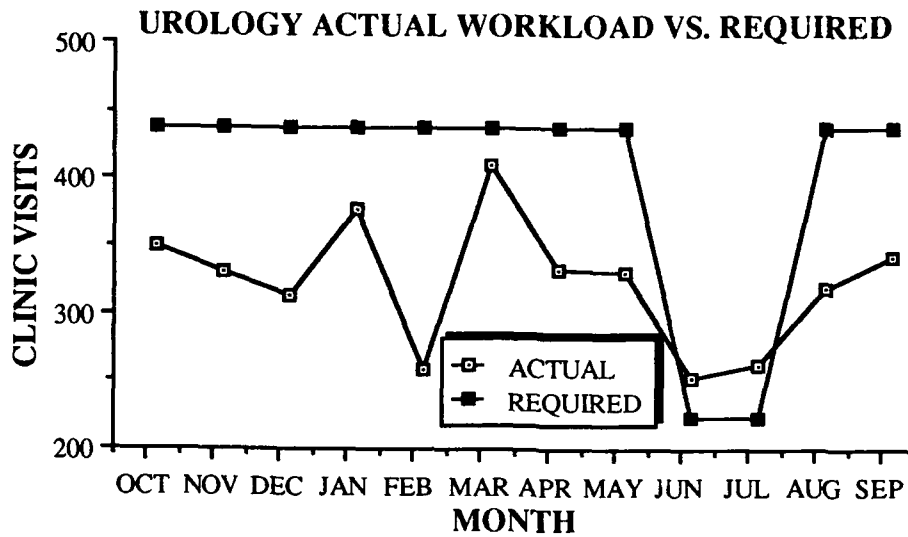
The Pediatric clinic generally underperformed the JMHS requirements except for the month of January.

Figure 21. Podiatry clinic total visits by month vs. required.



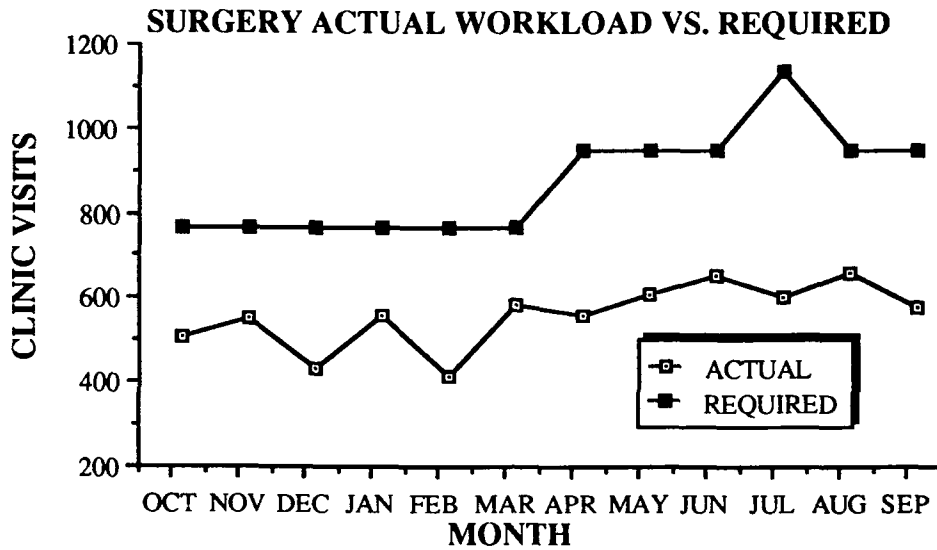
With the exception of the usual drop-off in December, the Podiatry clinic significantly exceeded the performance JMHS standards for every month.

Figure 23. Urology clinic total visits vs. required.



The Urology clinic consistently failed to meet JHMS standards except for the months of June and July. The improvement in productivity in this clinic for those two months was caused solely by the loss of one Urologist while the clinic maintained workload at levels very close to what they had with two Urologists.

Figure 22. Surgery clinic total visits by month vs. required.



The surgery clinic consistently failed to meet the JHMS standards for every month studied.

The surgery clinic operated at the lowest percentage of required capacity of any of the clinics studied.

## Discussion

### Implications of the results

Of the thirteen clinics studied, only three significantly exceeded the JHMS standards for total visits. Two clinics were sufficiently close to the standard that their variance from the standard was not statistically significant. The remaining eight clinics were all below the JHMS standards by statistically significant margins. The fact that only two out of thirteen clinics were within the standards, when one might reasonably expect 95 percent of the clinics to be within them, calls into question the value of the JHMS standards for validly predicting the workload of a clinic based on its healthcare provider staffing. The deviation from JHMS standards for the inpatient days measure of output causes even greater concern for the legitimacy of the JHMS standards. Not one of the seven clinics studied came even close to the JHMS standard. Perhaps the JHMS standards did not fully compensate for the increasing trend away from inpatient care in the healthcare industry.

Those clinics that did exceed the JHMS standards for total visits did so by extremely large margins. These clinics all did from about 1.5 to 2.5 times their (JHMS) required workload. This is important because it indicates that at least some of the JHMS standards can be met or even substantially exceeded. The Orthopaedic clinic saw about 472 patients per orthopaedic surgeon per month, which compares very favorably with the 420 patients per month seen by civilian Orthopaedic Surgeons extrapolated from the study done by Owens (1987). This is significant because it indicates that military physicians are capable of being at least as productive as their civilian counterparts.

By comparison, the Surgery clinic had about 117 total visits per surgeon per month. This matches rather unfavorably with the JHMS standard of 185 visits per surgeon per month and even more unfavorably against the performance of civilian surgeons who see on average 264 visits per month (Owens, 1987). Thus, the average military surgeon at

Moncrief Army Community Hospital saw less than half as many patients as his civilian counterpart.

The fact that the two surgical specialties of Orthopaedics and General Surgery would be at the two extremes of the productivity scale is difficult to explain. Clearly there is not anything unique to Army surgery or at least surgery at this hospital that interferes with productivity. If that were the case then all of the surgical specialties would be expected to have low levels of productivity. The variances in productivity between these two surgical specialties can apparently only be explained by problems within the JHMS standards themselves or by attributes particular to those two specific departments within this particular hospital.

Interestingly, the other two clinics with extremely high levels of productivity (Podiatry and Optometry) are both clinics associated with nonphysician healthcare providers. This may be an indication that the hospital needs to improve the medical staff's commitment to the organization. However, there are other explanations for the surprisingly high productivity in these clinics that are related to the mission of Fort Jackson as a basic training post.

The Optometry service in particular gets most of its workload from seeing basic trainees as they inprocess the Army. This is done at a separate site from the main hospital and in a highly systematic and efficient process. All of the patients seen are treated in about the same manner and this further improves the efficiency of the process. As is true with all basic training inprocessing procedures, an enormous number of trainees are seen very quickly on a prearranged schedule. The unique efficiency of this process may explain the very high productivity of the Optometry section. Quite possibly, the tri-service working groups continuing to develop the Joint Healthcare Manpower Standards should consider separate standards for workload contributed by those organizations that are simply

screening large numbers of trainees "in bulk."

Likewise, the Podiatry clinic sees a very large number of trainees who, for the first time in their lives, are having to run and walk long distances. This creates a large number of minor foot problems that are treated relatively quickly and efficiently in association with trainee sick call at the Troop Medical Clinic. To a large degree this argument is also valid for the highly productive Orthopaedic Surgery clinic.

It is possible that in many cases where this hospital's productivity is very high it is because the hospital is benefitting from the "economies of scale" associated with having a very large number of basic trainees within the facility's catchment area.

#### Causes of the productivity problem

In some areas where productivity was found to be low, some of the problem can be attributed to readily identifiable barriers to productivity. An excellent example of this can be found in Ophthalmology. The JHMS standards state specifically that "performance levels assume adequate space is available for each provider. The recommended number of exam rooms and treatment rooms is contained in the "DoD Medical Space Planning Criteria." The Medical Space Planning Criteria require that each Ophthalmologist have two treatment rooms. The total number of equipped Ophthalmology treatment rooms at Moncrief is two. Throughout the period of this study there were two Ophthalmologists assigned to the hospital. Thus, there was only one treatment room per Ophthalmologist. Clearly, these two Ophthalmologists could not be held to these standards when they were not provided the resources that those same standards require.

The Ophthalmologists in question claimed that they needed two treatment rooms to efficiently process patients. By having only one treatment room, they were prevented from effectively using technicians to perform routine work prior to the Ophthalmologist's dealing with the patient. A patient would have to be moved out of a room and a new

patient moved in before the Ophthalmologist could start his work. This effectively meant that the room was unused as patients were switched and that during that time the Ophthalmologist had nothing to do. Patient switching meant dead, wasted time for the Ophthalmologist. One of the implications of this study was that the two Ophthalmologist were only doing the work that the JHMS standards said one could do. It would seem that this fact became apparent to the manpower allocation officials within the Army Medical Department--in December 1989 one of the Ophthalmologists was transferred and not replaced. The remaining Ophthalmologist now has the two treatment rooms he requires. Since the number of Ophthalmologists has been cut if half, has the number of total visits to Ophthalmology also decreased by half? Hardly. In spite of a queue to receive Ophthalmology appointments that is usually nearly a month long, the average number of visits per month to the Ophthalmology clinic when there were two Ophthalmologists was 433 or about 67 percent of the 650 required for two Ophthalmologists. In the three months following the loss of one of the clinic's two Ophthalmologists, the average decreased to 419, a decrease of only 3 percent. The one remaining Ophthalmologist is therefore seeing an average of 419 total visits per month which substantially exceeds the JHMS standard of 325 visits per Ophthalmologist per month. The question for the hospital management to consider is whether giving the clinic the two fully equipped treatment rooms per Ophthalmologist that the standards require could have increased the workload even more and therefore prevented the permanent reassignment and loss of one of the hospital's two Ophthalmologists.

In general, however, the productivity problem at Moncrief Army Community Hospital is not due to readily identifiable barriers to productivity. Instead the productivity problem is most likely caused by a lack of guidance in the productivity arena. There are no internal



standards for productivity, so health care providers do not know what the expectations are for their performance. While the Hospital Command has done some "saber rattling" over the issue, there has been no formal effort to actually enforce productivity standards. Of course, since there are no specific standards it is not possible to enforce any. In the words of Califano (1986) "there was no reward for the efficient and no penalty for the profligate."

An example of the systemic lack of guidance can be found in the appointment scheduling process. Health care providers are essentially allowed to set their own appointment schedules with virtually no review. Health care providers thus are in the highly privileged position of being able to set their own work schedules, with no real review, and with no incentive to work more. It is difficult to imagine a worse system for productivity. Each provider or service has a different method of turning in their schedules to the appointment clerks. Appointment clerks generally receive handwritten notes of the schedule each provider wants, often just scribbled on scrap paper. This makes the review or audit of health care providers' schedules, at the present, virtually impossible. It also means that each appointment clerk must learn the particular method used by each provider or service.

Perhaps most importantly, healthcare providers at the hospital do not have a personal stake in productivity. Obviously, civilian healthcare providers who generally get paid for each patient interaction have a strong personal stake in being more productive. No such incentive exists at this hospital.

#### Weaknesses of the study

One weakness of this study was that it did not compare the productivity of the clinics at Moncrief Army Community Hospital against other clinics in other similar hospitals. Such an analysis was simply beyond the scope of this study but may have proved very useful.

Had a similar methodology been applied to other hospitals, the utility of the information gained and the strength of the conclusions would have been much greater. The possible benefits of such research serves as a strong case for further research of this type at other facilities.

Another weakness of this study was its reliance on the Medical Expense Performance Reporting System (MEPRS) database for its workload and personnel assignment information. Within the Army Medical System there is widespread skepticism over the quality and reliability of the information that is in the MEPRS system. This skepticism led former Health Services Command Chief of Staff COL Munley to request a review of the the inconsistencies between reports of the same measures in the MEPRS, MED 302, and Inpatient Data System (IPDS). Barber, Gunnell and Perry (1989) found widespread and significant inconsistencies in the separate databases. Widely different numbers for what were supposed to be measurements of the same things were the rule and not the exception.

More specifically, an audit by the hospital's internal auditor (Owens, 1990) found many problems within the hospital's workload reporting system to MEPRS. The auditor cited large scale overcounting and undercounting, frequent failures to capture clinic visits, clinic visits that were often not supported by medical records and inconsistent methods of data collection and reporting. Much of the auditor's study covered the same time period as this study.

While the questionable quality of the MEPRS data base may have strong implications for the validity of the actual productivity of any Army health care facility, this study is still relevant. Regardless of the validity of the data in the MEPRS system, it is still the reports from this system that the Army uses to assign resources. Thus, the information in MEPRS is relevant because the Army says it is, regardless of its validity. The JHMS standards for each clinic even list the specific MEPRS codes to be used when crediting

visits to the particular work area it is discussing.

## Conclusions and recommendations

### Conclusions

The purpose of this study was to compare the actual workload of selected clinics at Moncrief Army Community Hospital to health care provider staffing based standards developed by tri-service working groups and published by the Efficiency Review and Staffing Standards Division of Health Services Command. As a result of that comparison, and the implications from it, the study concludes the following:

1. Most clinics at Moncrief Army Community Hospital fail, by statistically significant margins, to meet the productivity standards developed by the tri-service working groups and published as the Joint Healthcare Manpower Standards (JHMS). Productivity has been a great concern to the senior management of the hospital but to date the management has not developed a comprehensive strategy to solve the problem. To survive in a system where resource allocation is productivity based, the management at Moncrief Army Community Hospital must make productivity improvement a top priority. There are four major reasons for the general productivity failure:

- a. The hospital currently has no internal guidelines for determining how much work its health care providers should do. As a result, healthcare providers have no formally defined expectations as to what their performance levels should be. Without such expectations it is very easy for healthcare providers to do much less than they are capable of doing.

- b. In addition to lacking any formal standards for healthcare provider productivity, the hospital currently has no institutionalized mechanism for aggressively enforcing such standards even if they were developed. Past efforts at enforcement consist

mostly of general threats of what will happen to hospital funding and staffing if productivity does not improve. Workload is reviewed at a variety of monthly meetings but it is not compared what should have been done based on staffing or any other standard.

c. The process by which provider appointment schedules are determined is seriously flawed. Essentially "the fox is being allowed to guard the chicken coop" as health care providers are free to set their own schedules in a nonstandardized process that is not subject to review, approval or audit. Even the appointment clerks who deal with it on a daily basis often have difficulty deciphering the scribbled schedules that are submitted to them on small pieces of scrap paper by their respective providers.

d. Healthcare providers at the hospital have no personal stake in productivity improvement. There is no perceived benefit for improving productivity. There is no perceived penalty for not improving productivity.

2. The three clinics at Moncrief Army Community Hospital that exceed the JHMS standards do so by impressively large margins. However, for at least two of these clinics (Podiatry and Optometry), most of their productivity advantage is associated with the "economies of scale" advantage that these clinics have in supporting or inprocessing a large number of basic trainees.

3. The standards found in the JHMS seem to be very reasonable when compared to the actual performance of civilian providers as measured by clinic visits. However, the fact that only two of thirteen clinics studied were in the range of variance expected by chance if the JHMS standards were valid strongly questions the utility of these standards. All other clinics either had significantly greater productivity than the JHMS standards for clinic visits required or significantly lower productivity than the JHMS standards for clinic visits required. The JHMS standards were even worse in predicting the inpatient days generated by the clinics. Not one of the seven clinics studied generated anything approaching the

inpatient days required by the JHMS standards. It is possible that the tri-service working groups that developed the inpatient days standards did not keep up with the trend for decreasing emphasis on inpatient care.

4. Ongoing problems in accurately recording and reporting workload through the MEPRS database both specifically at this hospital and generally in the Army continue to threaten the utility and fairness of allocating resources based on information from this database. While it is possible that a few of the problems in this regard may be unique to this facility, the evidence is overwhelming that most of the problems with MEPRS are system wide.

#### Recommendations

The management at Moncrief Army Community Hospital must make productivity improvement a top concern. Failure to quickly address the productivity issue in a meaningful fashion will result in further resource reductions to the hospital that will threaten to close even more essential services. The following strategy is recommended.

1. The hospital must develop and institutionalize productivity standards and goals.
  - a. The Hospital Commander together with the Deputy Commander for Clinical Services and selected members of the medical and administrative staffs should develop specific productivity goals. These goals should be provider based and should give healthcare providers a reasonably clear understanding of what they are expected to do.
  - b. The specific goals should be based either on history as suggested by Denton (1984) or upon the JHMS standards or a combination of both. For example, those clinics relatively close to the JHMS standards could use the JHMS standards as a basis, while those clinics further away from the JHMS standards could use history as a basis to get started. If history is used, the emphasis should be on continuous improvement in productivity over time, a central theme of the Total Quality Management method.

c. It is possible to convert most of the JHMS standards from clinic monthly goals to healthcare provider monthly and even daily goals. Simply take the number of visits required per provider per month and divide by 145 (the number of hours it is assumed by the standards a provider works per month) and then multiply by an eight hour day. It should be noted that this assumes that a provider works on the average about 18 days per month, which allows for leave, TDY, etc. Table 5 provides the results of this process for each type of healthcare provider and may be a useful guide in developing healthcare provider productivity goals.

Table 5. Number of visits per day according to JHMS standards.

<u>Healthcare Provider</u>	<u>Average number visits per day</u>
Allergist	13.8
Allergy Tech	16.5
Dermatologist	31.2
Internist	13.2
Internal Med Nurse Practitioner	16.2
Pediatrician	22.6
Pediatric Nurse Practitioner	27.6
Surgeon	10.2
Optometrist	18.8
Ophthalmologist	18
Orthopaedic Surgeon	13
Orthopaedic Tech	2.5
Podiatrist	27.6
Otolaryngologist	16.6
Urologist	11.9
Occupational Therapist	10
Occupational Therapy Tech	10.5

2. The hospital should institutionalize the productivity goals that it develops.

a. Specific objectives and tasks for developing a productivity improvement process should be incorporated into the next iteration of the hospital's strategic plan. This year's strategic plan, first of its type at the Fort Jackson MEDDAC, did not directly address the issue of productivity.

b. Clinical department heads and service chiefs should be required to submit specific goals for productivity improvements to the Hospital Commander. These goals should be based on the goals developed in the process outlined above and should be incorporated into the Officer's Efficiency Report Support Form. The commander should hold department and service chiefs' "feet to the fire" in regard to productivity through the Officer Efficiency Report system. Department and service chiefs should understand that their organization's productivity will be a primary consideration when their Officer Efficiency Reports are written.

c. The process by which health care provider appointment schedules are determined should be completely changed. The Clinical Support Division should work with the DCCS and the medical staff to develop a standardized form on which health care providers would submit a proposed appointment schedule. It is crucial that this standardized form be the only accepted medium for a provider to present a schedule. The proposed schedule would then be reviewed and approved by the department or service chief before being sent to the appointment clerk for implementation. Department or service chiefs would have their schedules reviewed by the DCCS. Changes in these appointment templates would have to pass through the same approval chain. The first step in the enforcement of whatever standards are developed might be to convert them to the kind of per day per provider format suggested above to ensure that the healthcare provider appointment schedules are compatible with the established goals. The Utilization

Management Committee (or a designated subcommittee) should periodically review appointment schedules and suggest changes to the Executive Committee. A standardized format and process for developing health care provider appointment schedules will go a long way toward bringing accountability back into the system.

d. Priority for additional supply, equipment, and personnel dollars should be given to those clinical services that are highly productive as defined by the process described in recommendation 1a. Conversely, poor producers would receive a lower priority. This recommendation is simply an effort to implement the value system suggested by Modderman (1989) at the individual service and facility level.

e. Control charts comparing required workload for each clinic vs. actual workload, similar to the ones used in this study, should be prepared monthly for the department and service chiefs by the hospital's Resource Management Division.

3. Healthcare providers should be given a personal stake in productivity improvement.

a. The granting and extending of off duty employment (moonlighting) privileges should be dependent upon the consistent meeting of productivity goals determined as outlined above. Off duty employment should be a privilege reserved for those who have been proven to be consistent producers in their military job. Health care providers may be willing to work hard while at the military hospital to retain lucrative off duty employment privileges. It is not too much to ask that military healthcare providers meet the minimum requirements of their regular job before being allowed the privilege of seeking additional employment.

b. Clinic chiefs and department heads should be required to personally brief the productivity of their organizations against the established productivity goals at the hospital's quarterly Review and Analysis (R & A) meetings. Failure to meet goals should have to be justified. This kind of public accountability would presumably provide clinic chiefs and



department heads with a motive for improving productivity and would allow them to present examples of productivity barriers to the senior management of the hospital along with recommendations as to how their productivity could be enhanced.

c. The hospital management should implement an incentive system to reward highly productive healthcare providers. Unlike the civilian healthcare sector, we cannot offer our healthcare providers more money for working harder. However, we have another incentive tool that the civilian healthcare system for the most part does not. We can offer paid time off. The incentive system could be based on the following recommended guidelines:

(1). A three day pass would be issued for those healthcare providers who meet their monthly goal. The incentive system could also be department or service oriented, with all providers receiving a three day pass if the department's or service's goal was achieved. The advantage of making the system individual oriented is that it would provide a more direct reward to the specific providers who are working hard. However, it would be more difficult to gather the data required to implement an individual provider based system. There is currently no standardized method in the hospital to determine precisely how many patients an individual provider treats. Basing the system on departments or services would be easy since the MEPRS database already routinely reports the number of visits per month for each department or service. However, this might allow some providers to get passes who simply allowed other providers in the service to work hard while they rode along. Likewise hard working providers could be penalized for less productive peers. On the other hand, basing the incentive system at the department or service level might increase peer pressure for all providers (and other staff) to do their part. As a result a team approach to improving productivity may evolve that would have greater overall benefits than the individual approach.

(2). A four day pass for those healthcare providers (or services, if that system is used) who meet semi-annual productivity goals. This additional pass would presumably provide a longer term focus toward productivity. It would give an incentive to services or providers that were falling behind in one month to continue striving to meet their goals. Even services or providers that were ahead would still have a motive for working hard. They would still want to meet both the monthly and semi-annual goals.

(3). If the service oriented option is used, the DCCS and department chiefs should be empowered to reward those who are pulling a disproportionate share of the load with special passes (even if the service failed to reach its goal), while withholding passes from those who did not do their fair share (even if the service did reach its goal).

(4) Passes should be extended to additional staff members who are not direct healthcare providers but who have still contributed to the team effort of productivity improvement at the discretion of department heads. Passes could be staggered across different dates or even consist of giving a couple of partial days off to minimize the impact of personnel loss on clinics.

All or a combination of these efforts should provide an added emphasis and pressure healthcare providers from within their peer group and outside of it to be more productive. Most importantly, the individual healthcare provider will have a personal stake in productivity.

4. A productivity task force consisting of the Commander, DCCS, DCA and selected medical staff should be assembled to develop the specific productivity goals and incentive programs outlined in recommendations one and two.

5. The DCCS should be tasked to conduct a monthly audit of randomly selected clinical services to determine if the workload reported is accurate. This would discourage any abuse or "padding" of workload figures to obtain passes under the incentive system.

In addition, the use of regular audits of workload reporting may help to improve the problems cited by the auditor in his report on MEPRS deficiencies.

6. The hospital should move quickly to adopt the recommendations of the auditor's report on MEPRS deficiencies (Owens, 1990). However, many of the problems with MEPRS appear to be intrinsic to the system. The Army Medical Department should make the correction of the systemic problems with MEPRS a high priority before proceeding with any further efforts to base resourcing of medical treatment facilities on information derived from that source.

7. The tri-service working groups developing the JHMS standards should consider the effect that large scale inprocessing of trainees has on workload reporting figures. Perhaps less credit can be given to inprocessing soldiers when developing the point system for the new Ambulatory Work Units (AWUs)

8. The Army Medical Department should consider the results of this study (and conduct more studies like it) before actually implementing the JHMS standards for the allocation of resources. The fact that only two out of thirteen outpatient clinics were within the variance of total visits that 95 percent of the clinics should have been in if the standards were accurate predictors of need, and that none of seven clinics that generate inpatient days were even close to the standards for that measure, is a strong indication that further research is needed before implementation of these standards. In particular, it seems likely that the JHMS standards have not taken into account the decreasing emphasis on inpatient care that has swept through the entire health care industry.

9. The Department of Defense should consider restructuring its current financial bonus system to allow local commanders to award or deny selected bonus increments to productive or nonproductive physicians respectively. After all, civilian physicians generally get paid based on the amount of work they do.

Barriers to implementation of recommendations

It is possible that the incentive program giving healthcare providers and other staff days off for meeting productivity goals could get out of hand and actually decrease productivity if not carefully monitored and controlled. Removing people from the work place does, after all, seem inherently nonproductive. However, this may not be the case if meeting productivity goals is a clear prerequisite to granting time off. The philosophy here should be one where if, and only if, healthcare providers have done all that they should have done in one months time will they be allowed a day off. If this is done then there can be no harm to productivity as all the work that is supposed to be getting done will be getting done.

An excellent example of how an incentive system based on passes can actually work in this facility to improve productivity can be found within the Community Mental Health Service (CMHS). Within CMHS mental health technicians are direct healthcare providers. The Chief of the service about six months ago instituted an incentive system in which the technicians compete with each other for a four day pass quarterly (which is very similar to one of the recommendations of this study). The mental health technician who has the most patient visits in the quarter receives a four day pass. Since the implementation of this program the number of visits to (CMHS) has increased by 76 percent from the same time last year in spite of the fact that the trainee population is less in 1990 than it was in 1989.

Even so, the incentive system aspect of this strategy must be monitored closely to ensure that it is not abused and that it is actually having a positive impact on the working habits of healthcare providers and productivity. Special care must be taken to ensure that patient care is not disrupted by giving time off. For this reason it may be necessary to stagger passes across different dates or to give several partial days off.

There are some problems that the hospital management is likely to encounter in its efforts to develop and institutionalize productivity standards and goals. The development of the specific healthcare provider productivity standards is likely to be very difficult and will be subject to challenge and resistance from the members of the medical staff who will have to live with these standards. In addition, some of the proposals found in this study such as basing off duty employment privileges on meeting productivity goals and requiring department and service heads to personally brief productivity at the quarterly Review and Analysis meetings may generate considerable resentment within a medical staff that already, in general, lacks organizational loyalty.

For these reasons any standards should be subject to periodic review, especially in the early phases of implementation. The creation of productivity standards and goals should not be a one time, static event. Rather it should be a continuous, dynamic and evolving process. To reduce the opposition of the medical staff one alternative is to phase in the standards and the recommendations slowly. There could be an introductory phase where the standards exist only as "shadow standards." This would allow review and challenge of the standards prior to a phased implementation of the total strategy so as to soften the impact of these recommendations on the medical staff.

In addition the hospital management should attempt to educate the medical staff as to why a productivity improvement strategy is necessary. Every effort should be made to emphasize the positive attributes of the program (such as the incentive plan). Before implementation occurs supporters on the medical staff should be identified and used to advocate the program to their peers.

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